AF/2112

ZDW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Barry Thornton

Serial No. 09/728,669

Filed: December 1, 2000

For: A SYSTEM OF CO-LOCATED COMPUTERS IN A FRAME-WORK INCLUDING REMOV-ABLE FUNCTION MODULES FOR ADDING MODULAR FUNCTIONALITY

§ Group Art Unit: 2112
§
§ Examiner: Huynh, Kim T.
§
§ Atty. Dkt. No.: 5602-09400
§
§
§
§
§
§
§
§
§
§
§
§

CERTIFICATE OF MAILING
37 C.F.R. § 1.8

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date indicated below:

Derrick Brown
Name of Registered Representative

April 18, 2005
Date

Signature

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir/Madam:

Further to the Notice of Appeal filed February 17, 2005, Appellants present this Appeal Brief. Appellants respectfully request that this appeal be considered by the Board of Patent Appeals and Interferences.

I. REAL PARTY IN INTEREST

The subject application is owned by ClearCube Technology, a corporation organized and existing under and by virtue of the laws of the State of Delaware, and having its principal place of business at 8834 Capitol of Texas Highway, Austin, TX 78759, as evidenced by the assignment recorded at Reel 011382, Frame 0177.

II. RELATED APPEALS AND INTERFERENCES

No other appeals, interferences or judicial proceedings are known which would be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-41 are pending and rejected. The rejection of claims 1-41 is being appealed. A copy of claims 1-41 is included in the Claims Appendix hereto.

IV. STATUS OF AMENDMEMNTS

No amendments to the claims have been submitted subsequent to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Many commercial businesses make extensive use of networked personal computers (PCs) in their daily operations. As the number of networked computer systems utilized in an enterprise increases, the management of such resources becomes increasingly complex and expensive, e.g., installation and deployment, the topology and physical logistics of the network, asset management, scalability (the cost and effort involved in increasing the number of units), troubleshooting network or unit problems, support costs, software tracking and management, and physical space, as well as security

issues regarding physical assets, data protection, and software control. Many of these issues may be addressed by centralizing the locations of the personal computers, such as by installing multiple PCs into a central frame or cabinet. However, adding functionality to each of the clustered or co-located computers is problematic. Prior art approaches have typically involved installing respective devices at a central location and running cables to each computer to provide the functionality, which may entail excessive resources, e.g., multiplication of cables, chassis, power supplies, etc., increased risk of unintended synergies due to serial ordering of multiple devices, increased system complication, logistics, decreased scalability, etc. *See, e.g.,* specification, p.1, line 9 – p.4, line 4.

Independent claim 1 is directed to a system comprising a plurality of centrally located computing systems, e.g., for use in call centers. The system includes a cage having slots configured to receive respective computer cards, a plurality of computer cards, and each including a processor and a memory for executing at least one application program. One embodiment of an example computer card is described in the specification on p.14, line 27 – p.15, line 1. One embodiment of a multi-computer card system is illustrated in Figure 4, in which multiple computer cards 108 are inserted into the slots of the cage 211, as described in the specification at p. 19, lines 5 – 6. The system also includes a removable function module operable to electrically couple to at least a subset of the plurality of computer cards, and further operable to provide additional functionality to each of the computer cards comprised in the slots of the cage. Exemplary embodiments of the function module and its use are illustrated in Figures 6-8, and described in detail in the specification on p.20, line 14 – p.24, line 8.

Independent claim 11 is directed to a system substantially as described above with respect to independent claim 1, but with the further limitation that the cage 211 includes a cage connector 509 positioned proximate to each of the slots of the cage, *see, e.g.,* Figure 6, and p.20, lines 16-20. The cage connector 509 includes a plurality of computer card connectors which are each configured to couple to one of the computer cards 108 when the computer cards are inserted into slots of the cage, and also includes a plurality of

second connectors electrically coupled to the plurality of computer card connectors. The removable function module 602 is operable to couple to the plurality of second connectors. In the example embodiment described with reference to Figure 6, the removable function module 602 engages the cage connector 509 via a module connector 609, thereby coupling to computer cards in the cage. As described on p.20, lines 25-29, the use of the cage connector 509 as an intermediate connection between the computer cards 108 and the function module 602 facilitates the removal and/or exchange of the function module 602 without the need to disconnect any of the computer cards 108.

Independent claim 37 is directed to a system substantially as described above with respect to independent claim 11, and further specifying the means for connecting the computer cards to the cage connector. Specifically, the computer cards have edge connectors, and the cage connector includes multiple edge connector receiving slots for receiving the edge connectors when the computer cards are inserted into the cage. *See, e.g.,* p. 20, lines 16-24.

Independent claim 41 is directed to a system substantially as described above with respect to independent claim 1, but with the further limitations that each computer card includes a personal computer that interfaces with a separate set of human interface devices, including at least a monitor and a keyboard, to provide personal computer functionality to a user of the separate set of human interface devices. *See, e.g.,* Figures 1, 4 and 5, and p.19, line 4 – p.21, line 7.

Independent claim 21 is directed to a method for configuring a plurality of computing systems, i.e., the computing systems described above with reference to independent claim 1. The method includes inserting a plurality of computer cards 108 into a cage 211, and attaching a first removable function module 602 to electrically connect with at least a subset of the plurality of computer cards, where the first removable function module 602 provides a first additional functionality to each of the at least a subset of the plurality of computer cards 108 comprised in the slots of the cage. *See, e.g.,*

Figure 9, and the corresponding description in the specification on page 24, lines 12 – 29, as well as Figures 2, and 6-8, and p.13, line 18 – p.19, line 2, and p.20, line 14 – p.24, line 8.

Independent claim 31 is directed to a method for configuring a plurality of computing systems, as described above with respect to independent claim 21, but with the added limitations that the cage includes the cage connector 509 described above with respect to independent claim 11, i.e., where the cage connector 509 includes computer card connectors, each coupled to one of the computer cards inserted into the slots of the cage, and a plurality of second connectors electrically coupled to the computer card connectors; and where, in addition to attaching the first removable function module to the plurality of second connectors, the method further includes attaching cables to the first removable function module, thereby coupling the first removable function module to one or more human interface devices located remotely from the cage. *See, e.g.,* p. 24, lines 20-25, Figures 4 and 5, and p.19, lines 6-15.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1-6, 9-15, 18-27, 37, and 39-41 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lach (U.S. Pat. No. 6,363,452) in view of Ledzius et al. (U.S. Pat. 6,539,438).

2. Claims 7, 16, 28, 29, 34, and 38 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lach (U.S. Pat. No. 6,363,452) in view of Ledzius et al. (U.S. Pat. 6,539,438), and further in view of Heath et al. (U.S. Pat. 6,564,274).

VII. ARGUMENT

First Ground of Rejection:

Claims 1-6, 9-15, 18-27, 37, and 39-41 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lach (U.S. Pat. No. 6,363,452, henceforth "Lach") in view of Ledzius et al. (U.S. Pat. 6,539,438, henceforth "Ledzius"). Appellants traverse this rejection for the following reasons. Different groups of claims are addressed under their respective subheadings.

Claims 1, 7-8, 21, and 26-29:

Appellants respectfully submit that claims 1, 7-8, 21, and 26-29 recite combinations of features not taught or suggested in Lach and/or Ledzius.

Regarding claim 1:

Appellant notes that Lach only appears to disclose adapter cards. The adapter cards of Lach do not contain a processor and memory for executing at least one application program as recited in these claims. As Lach states: "The adapter cards 210, 212 typically contain functionality in addition to that found on the motherboard (emphasis added) (Lach, col. 5, lines 16-18)." The adapter cards of Lach do not have separate processors and memories from the motherboard of Lach. Lach also fails to disclose multiple computer cards, each with a processor and memory, as recited in Applicant's claims.

The Examiner admitted that Lach does not teach or suggest: "wherein each computer card comprises one of the plurality of computing systems, wherein each computing system includes a processor and a memory for executing at least one application program" as recited in claim 1, but then cites Ledzius in an attempt to remedy this admitted deficiency of Lach, specifically, col. 2, lines 44-63, col. 3, lines 8-20, and col. 5, lines 4-19.

However, as the cited passages clearly describe, and as the Examiner herself states in the Final Office Action, Ledzius discloses a plurality of PCMCIA cards inserted into an operating host computer to add functionality for the host computer, where each PCMCIA card includes an FPGA (field programmable gate array) which is programmable

to provide for interfacing application programs *executing on the host computer* to hardware objects. In other words, Ledzius's applications execute on the host computer, *not* on the PCMCIA cards.

The Examiner further states that Ledzius's FPGA is programmed with programming data stored in non-volatile memory on the PCMCIA card, and that the PCMCIA card's resource information may be stored on or off the card, and used to determine if a particular card meets the requirements of an application requesting services. In other words, the (FPGAs on the) PCMCIA cards are configurable using data stored on the cards to provide interface functionality between applications running on the (single) host computer and hardware objects or devices.

It is unclear whether the Examiner is attempting to characterize the PCMCIA cards as function modules, or as computer cards (as defined by Appellants in the specification and independent claims).

In the first case (if the PCMCIA card is characterized as a computer card as defined in claim 1 and the specification), Appellant respectfully submits that it is well known that a PCMCIA card does not comprise a computing system that "includes a processor and a memory for executing at least one application program", and that Ledzius fails to disclose this limitation of claim 1. Thus, Appellants respectfully submit that the PCMCIA card is specifically *not* a computer card comprising one of the plurality of computing systems, wherein each computing system includes a processor and a memory for executing at least one application program. Moreover, even if the PCMCIA card were interpreted as Appellants' computer card, which Appellant argues is improper, then Ledzius (as well as Lach) fails to teach "a removable function module, wherein the removable function module is operable to electrically couple to at least a subset of the plurality of computer cards, wherein the removable function module is operable *to provide additional functionality to each of the computer cards comprised in the slots of the cage*".

In the second case (PCMCIA card characterized as a function module), Appellants

note that the PCMCIA card is "inserted into an operating host computer to add functionality *for the host computer*", and thus fails to teach the limitation "wherein the removable function module is operable to provide additional functionality to each of the computer cards comprised in the slots of the cage".

Appellants submit that Lach also fails to teach this limitation of claim 1; rather, Lach teaches "adapter cards" for the motherboard (of a host computer). Lach does not appear to teach a removeable function module to provide additional functionality *to each computer card.*

Claim 21 includes similar limitations as claim 1, and so the arguments presented above apply to claim 21, as well. For example, Appellants submit that Lach and Ledzius do not appear to disclose, teach, or suggest "inserting a plurality of computer cards into a cage, wherein each computer card comprises one of the plurality of computing systems, wherein each computing system includes a processor and a memory for executing at least one application program, wherein the cage comprises a plurality of slots, wherein each of the slots is configured to receive one of the computer cards", nor do Lach and Ledzius teach or suggest attaching a first removable function module "wherein the first removable function module provides a first additional functionality to each of the at least a subset of the plurality of computer cards comprised in the slots of the cage" as recited in claim 21.

Additionally, Appellants respectfully submit that neither Lach nor Ledzius provides a motivation to combine, and note that, as argued above, even if the references were properly combinable, which Appellants argue they are not, the resulting combination does not teach Appellants' invention as represented in claims 1 and 21. For example, nowhere does Lach or Ledzius suggest the desirability of a plurality of computer cards (as defined by Appellants) inserted into slots of a cage, nor a function module that provides additional functionality to a plurality of computing systems, specifically, to the plurality of computer cards inserted into slots of the cage. In fact, the only motivation suggested by the Examiner to combine Lach and Ledzius (regarding claim 1) is "so as technical advantage is easy adaptability of its technology to any bus type, such as a portable computing bus standard like PCMCIA [sic]", which Appellants submit is not a

proper motivation to combine.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claims 1 and 21. Appellants respectfully submit that claims 1 and 21, and dependent claims 7-8, and 26-29, respectively dependent therefrom, are patentably distinct and non-obvious over the cited art.

Claims 2, 3, and 23

Appellants respectfully submit that claims 2, 3, and 23 recite combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to the independent claims, Appellants submit that the cited art does not teach or suggest the limitation "*wherein each of the plurality of computer cards is configured for coupling to one or more cables for communication of encoded human interface signals with a remote location*".

The Examiner asserts that Lach discloses this feature, citing col. 4, lines 26-42. However, Appellants note that the cited passage simply describes I/O devices, e.g., a keyboard and mouse controller, audio transducer, etc., being coupled to an I/O bus, and specifically does *not* disclose, or even mention, a remote location. Appellants further note that Ledzius also fails to teach or suggest this feature.

Similarly, Lach and Ledzius both fail to teach or suggest "*electrically coupling each of the computer cards to one or more cables, wherein the one or more cables are configured to couple each of the computer cards to respective one or more human interface devices located remotely from the cage*".

Appellents further submit that the neither Lach nor Ledzius teaches or suggests "*wherein each of the plurality of computer cards is further configured for communication of network signals with a network*", given that neither reference teaches "the plurality of computer cards", as defined by the independent claims.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and

limitations of claims 2, 3, and 23. Appellants respectfully submit that claims 2, 3, and 23 are patentably distinct and non-obvious over the cited art.

Claims 4, 11, 16, 17, 37, and 38:

Appellants respectfully submit that claims 4, 11, 16, 17, 37, and 38 recite combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to the independent claims, Appellants submit that the cited art does not teach or suggest the limitation "*wherein the cage further includes a cage connector positioned proximate to each of the slots of the cage, wherein the cage connector includes a plurality of computer card connectors which are each configured to couple to one of the computer cards when the computer cards are inserted into slots of the cage, wherein the cage connector further includes a plurality of second connectors electrically coupled to the plurality of computer card connectors; wherein the removable function module is operable to be coupled to the plurality of second connectors*", as recited in claims 4 and 11.

The Examiner asserts that Lach teaches this feature. However, Appellants submit that Lach nowhere mentions or describes a cage connector, including multiple computer card connectors operable to couple respectively to multiple computer cards when inserted into slots of the cage, and multiple second connectors operable to couple to the function module. Rather, Lach discloses connectors for "add-on" cards, i.e., computer expansion cards, coupling the add-on cards to a PCI bus via PCI slots, for adding functionality to a (single) host computer system. Appellants submit that whereas in Appellants' invention as represented in claim 4, a single function module may couple to a plurality of computer systems (computer cards) through the cage connector to provide functionality to each of the computer cards inserted into slots of the cage, in Lach's system, multiple adaptor cards may be inserted into PCI slots of a PCI bus to provide additional functionality to a *single* host computer system. Thus, Appellants respectfully submit that Lach actually teaches away from Appellants' invention as represented in claims 4 and 11.

Claim 37 includes the limitation "*a cage connector with multiple edge connector receiving slots, wherein each of the at least two computer cards has an edge connector*

that is received into a respective edge connector receiving slot of the cage connector when the computer card is inserted into the cage". Appellants submit that Lach nowhere teaches or suggests this feature. As noted above with respect to claims 4 and 11, Lach fails to describe multiple computer cards as defined by Appellants, where each computer card is insertable into a respective slot of a cage. As also noted above, Ledzius also fails to disclose this feature.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claims 4, 11, and 38. Appellants respectfully submit that claims 4, 11, and 38, and claims 16, 17, and 38, dependent from claims 11 and 38, respectively, are patentably distinct and non-obvious over the cited art.

Claims 5, 12, 13, and 14:

Appellants respectfully submit that claims 5, 12, 13, and 14 recite combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to the independent claims and claim 4, Appellants submit that the cited art does not teach or suggest the limitation "*wherein the plurality of second connectors are each configured for coupling to one or more cables for communication of encoded human interface signals with a remote location*".

As noted above, neither Lach nor Ledzius discloses communicating human interface signals with a remote location at all, and more specifically, these references do not mention or describe a plurality of second connectors (comprised in a cage connector) coupling to one or more cables for doing so, as represented in claims 5 and 12.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claims 5 and 12. Appellants respectfully submit that claims 5 and 12, and claims 13 and 14, dependent from claim12, are patentably distinct and non-obvious over the cited art.

Claims 6 and 22:

Appellants respectfully submit that claims 6 and 22 recite combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to the independent claims, Appellants submit that the cited art does not teach or suggest the limitation "*wherein the removable function module is a first removable function module that provides first functionality; wherein the first removable function module is operable to be removed and replaced with a second different removable function module, wherein the second removable function module provides second different functionality to each of the computer cards comprised in the slots of the cage*", as recited in claim 6

Appellants submit that, as argued above with respect to the removable function module of the independent claims, neither Lach nor Ledzius teaches or suggests (a second different) removable function module operable to provide (second different) functionality to each of the computer cards comprised in the slots of the cage and further operable to replace the first removable function module. In other words, neither the adapter cards of Lach, nor the PCMCIA cards of Ledzius, operate to provide functionality to *each of the plurality of computer cards inserted into slots of the cage.*

Claim 22 includes similar limitations as claims 6, and so the above arguments apply with equal force to this claim. Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claims 6 and 22. Appellants respectfully submit that claims 6 and 22 are patentably distinct and non-obvious over the cited art.

Claim 9

Appellants respectfully submit that claim 9 recites combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to the independent claims, Appellants submit that the cited art does not teach or suggest the limitation "*wherein the plurality of computing systems comprises a plurality of independent computing systems*".

Appellants submit that an "independent computing system" necessarily includes its own resources, e.g., for processing and storing data, as well as a power supply, bus, and any other resources required to operate or compute independently. Thus, the plurality of independent computing systems of claim 9 distinguish over both the adaptor cards of Lach, and the PCMCIA cards of Ledzius,l as well as their respective host computers.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claim 9. Appellants respectfully submit that claim 9 is patentably distinct and non-obvious over the cited art.

Claims 10 and 30

Appellants respectfully submit that claims 10 and 30 recite combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to the independent claims, Appellants submit that the cited art does not teach or suggest the limitation "*wherein each computer card comprises: a frame; a printed circuit board mounted to the frame; a CPU comprised on the printed circuit board; a memory comprised on the printed circuit board; a non-volatile memory comprised on the frame; network interface logic comprised on the printed circuit board for interfacing to a network; human interface logic comprised on the printed circuit board which is operable to receive two or more human interface signals and encode the two or more human interface signals into a format suitable for transmission to a remote location*".

Appellants submit that, as argued above, neither Lach nor Ledzius teaches or suggests, or even mentions, transmitting human interface signals to a remote location; nor do these references teach a plurality of computer cards as defined in claims 10 and 30. Moreover, neither Lach nor Ledzius teaches or suggests the limitation "*wherein the human interface logic is further operable to receive two or more encoded human interface signals from the remote location and decode the two or more encoded human interface signals from a format suitable for transmission from the remote location*".

Both Lach and Ledzius also fail to disclose "*a human interface connector coupled to the human interface logic, wherein the human interface connector is configured to couple to the one or more cables for communication of the encoded human interface signals with a remote location*".

Finally, the systems disclosed in Lach and Ledzius (host computer, plus adaptor cards and PCMCIA cards, respectively) do not include a power supply comprised on the frame, "*wherein the power supply is operable to couple to an external power source and supply power to the plurality of computing systems*".

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claims 10 and 30. Appellants respectfully submit that claims 10 and 30 are patentably distinct and non-obvious over the cited art.

Claim 15

Appellants respectfully submit that claim 15 recites combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to claim 11, Appellants submit that the cited art does not teach or suggest the limitation "*wherein the removable function module is a first removable function module that provides first functionality; wherein the first removable function module is operable to be removed and replaced with a second different removable function module, wherein the second removable function module provides second different functionality to each of the computer cards comprised in the slots of the cage*".

Appellants submit that, as argued above with respect to the removable function module of the independent claim 11, neither Lach nor Ledzius teaches or suggests (a second different) removable function module operable to provide (second different) functionality to each of the computer cards comprised in the slots of the cage, and further operable to replace the first removable function module. In other words, neither the adapter cards of Lach, nor the PCMCIA cards of Ledzius, operate to provide functionality to *each of the plurality of computer cards inserted into slots of the cage.*

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claim 15. Appellants respectfully submit that claim 15 is patentably distinct and non-obvious over the cited art.

Claim 18

Appellants respectfully submit that claim 18 recites combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to claim 11, Appellants submit that the cited art does not teach or suggest the limitation "*wherein the plurality of computing systems comprises a plurality of independent computing systems*".

Appellants submit that, as argued above with respect to the, neither Lach nor Ledzius teaches or suggests. In other words, neither the adapter cards of Lach, nor the PCMCIA cards of Ledzius, nor the host computer systems of each, comprise *the plurality of computing systems* as recited in claim 11, with the additional limitation *wherein the plurality of computing systems comprises a plurality of independent computing systems*, where, as argued above with reference to claim 9, an "independent computing system" necessarily includes its own resources, e.g., for processing and storing data, as well as a power supply, bus, and any other resources required to operate or compute independently. Thus, the plurality of independent computing systems of claim 18 distinguish over both the adaptor cards of Lach, and the PCMCIA cards of Ledzius,l as well as their respective host computers.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claim 18. Appellants respectfully submit that claim 18 is patentably distinct and non-obvious over the cited art.

Claims 19 and 39

Appellants respectfully submit that claims 19 and 39 recite combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to claims 11 and 37, Appellants submit that the cited art does not teach or suggest the limitation "".

Appellants submit that, as argued above with respect to the, neither Lach nor Ledzius teaches or suggests. In other words, neither the adapter cards of Lach, nor the PCMCIA cards of Ledzius, nor the host computer systems of each, comprise *the plurality of computing systems* as recited in claims 11 and 37, with the additional limitation, *wherein each computer card comprises: a frame; a printed circuit board mounted to the frame; a CPU comprised on the printed circuit board; a memory comprised on the printed circuit board; a non-volatile memory comprised on the frame; network interface logic comprised on the printed circuit board for interfacing to a network; human interface logic comprised on the printed circuit board which is operable to receive two or more human interface signals and encode the two or more human interface signals into a format suitable for transmission to a remote location*".

Appellants submit that, as argued above, neither Lach nor Ledzius teaches or suggests, or even mentions, transmitting human interface signals to a remote location; nor do these references teach a plurality of computer cards as defined in claims 19 and 39. Moreover, neither Lach nor Ledzius teaches or suggests the limitation "*wherein the human interface logic is further operable to receive two or more encoded human interface signals from the remote location and decode the two or more encoded human interface signals from a format suitable for transmission from the remote location*".

Both Lach and Ledzius also fail to disclose "*a human interface connector coupled to the human interface logic, wherein the human interface connector is configured to couple to the one or more cables for communication of the encoded human interface signals with a remote location*".

Finally, the systems disclosed in Lach and Ledzius (host computer, plus adaptor cards and PCMCIA cards, respectively) do not include a power supply comprised on the frame, "*wherein the power supply is operable to couple to an external power source and supply power to the plurality of computing systems*".

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and

limitations of claims 19 and 39. Appellants respectfully submit that claims 19 and 39 are patentably distinct and non-obvious over the cited art.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claims 19 and 39. Appellants respectfully submit that claims 19 and 39 are patentably distinct and non-obvious over the cited art.

Claim 20

Appellants respectfully submit that claim 20 recites combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to claim 11, Appellants submit that the cited art does not teach or suggest the limitation "*a cable connection module, wherein the cable connection module comprises a plurality of third connections which are operable to electrically connect to the plurality of second connectors, and wherein the cable connection module is further operable to couple to one or more cables for one or more of communications between each computer card and respective remote locations, and communications between each computer card and a network*".

Appellants submit that, as argued above, neither Lach nor Ledzius teaches or suggests, or even mentions, communicating between each of a plurality of computer cards and respective remote locations. Moreover, neither of the references discloses a cable connection module with connections operable to electrically connect to multiple second connectors in a cage connector for effecting such communications.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claim 20. Appellants respectfully submit that claim 20 is patentably distinct and non-obvious over the cited art.

Claim 24

Appellants respectfully submit that claim 24 recites combinations of features not

taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to claim 23, Appellants submit that the cited art does not teach or suggest the limitation "*wherein said electrically coupling comprises attaching the one or more cables to the first removable function module, wherein the one or more cables couple the first removable function module to the one or more human interface devices*".

Appellants submit that, as argued above with respect to claim 23, neither Lach nor Ledzius teaches or suggests, or even mentions, coupling cables between the plurality of computer cards and respective remote human interface devices for communicating therebetween; and moreover, these references do not teach or suggest effecting this coupling via the first removable function module, as defined in claim 21 and the specification.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claim 24. Appellants respectfully submit that claim 24 is patentably distinct and non-obvious over the cited art.

Claim 25

Appellants respectfully submit that claim 25 recites combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to claim 23, Appellants submit that the cited art does not teach or suggest the limitation "*wherein the one or more human interface devices are located more than 20 feet from the cage*".

Appellants submit that, as argued above with respect to claim 23, neither Lach nor Ledzius teaches or suggests, or even mentions, coupling cables between the plurality of computer cards and respective remote human interface devices for communicating therebetween; and moreover, these references do not teach or suggest effecting this coupling via the first removable function module, as defined by claim 21 and the specification.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claim 25. Appellants respectfully submit that claim 25 is patentably distinct and non-obvious over the cited art.

Claims 31 and 33

Appellants respectfully submit that claims 31 and 33 recite combinations of features not taught or suggested in Lach and/or Ledzius.

For example, as argued above with respect to claim 21, nowhere does Lach or Ledzius teach or suggest "*inserting a plurality of computer cards into a cage, wherein each computer card comprises one of the plurality of computing systems, wherein each computing system includes a processor and is more well a memory for executing at least one application program, wherein the cage comprises a plurality of slots, wherein each of the slots is configured to receive one of the computer cards*".

Nor, as argued above with respect to claims 4 and 11, does Lach or Ledzius teach or suggest "*wherein the cage further includes a cage connector positioned proximate to each of the slots of the cage, wherein the cage connector includes a plurality of computer card connectors which are each coupled to one of the computer cards when the computer cards are inserted into the slots of the cage, wherein the cage connector further includes a plurality of second connectors electrically coupled to the plurality of computer card connectors*".

Nor, as argued above with respect to claims 21, does Lach or Ledzius teach or suggest "*attaching a first removable function module to the plurality of second connectors, wherein the first removable function module provides a first additional functionality to each of the computer cards comprised in the slots of the cage*".

Finally, neither does Lach or Ledzius teach or suggest the limitation "*attaching one or more cables to the first removable function module, wherein the one or more cables couple the first removable function module to one or more of a plurality of human interface devices located remotely from the cage*". Applicant notes that, as mentioned

above, neither Lach nor Ledzius even mentions coupling a removable function module to remote human interface devices.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claims 31, 33, and 34. Appellants respectfully submit that claims 31, 33, and 34 are patentably distinct and non-obvious over the cited art.

Claims 32

Appellants respectfully submit that claim 32 recites combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to claim 31, Appellants submit that the cited art does not teach or suggest the limitation "*detaching the one or more cables from the first removable function module; detaching the first removable function module from the plurality of second connectors; attaching a second removable function module to the plurality of second connectors, wherein the second removable function module provides a second additional functionality to each of the computer cards comprised in the slots of the cage; and attaching the one or more cables to the second removable function module, wherein the one or more cables couple the second removable function module to the one or more of the plurality of human interface devices located remotely from the cage*".

For example, nowhere does Lach or Ledzius teach or suggest replacing a first removable function module that provides functionality to a plurality of computing systems, as defined in the independent claims and specification; and more specifically, these references fail to disclose detaching the first removable function module from the plurality of second connectors (of the cage connector). Nor to they disclose attaching a second removable function module to the plurality of second connectors (of the cage connector), where the second removable function module provides a second additional functionality *to each of the computer cards comprised in the slots of the cage.* In fact, as argued above with respect to all the independent claims, neither of these references describes or even mentions such a function module at all.

Finally, nowhere does Lach or Ledzius teach or suggest *attaching the one or more cables to the second removable function module, wherein the one or more cables couple the second removable function module to the one or more of the plurality of human interface devices located remotely from the cage.* As note above, these references fail to disclose or even mention remote human interface devices at all.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claim 32. Appellants respectfully submit that claim 32 is patentably distinct and non-obvious over the cited art.

Claims 35

Appellants respectfully submit that claim 35 recites combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to claim 31, Appellants submit that the cited art does not teach or suggest the limitation "*wherein the plurality of computing systems comprises a plurality of independent computing systems*".

As argued above with respect to claim 9, Appellants submit that an "independent computing system" necessarily includes all resources required to operate or compute, e.g., for processing and storing data, as well as a power supply, bus, and any other resources required to operate or compute independently. Thus, the plurality of independent computing systems of claim 35 distinguish over both the adaptor cards of Lach, and the PCMCIA cards of Ledzius, as well as their respective host computers.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claim 35. Appellants respectfully submit that claim 35 is patentably distinct and non-obvious over the cited art.

Claims 36

Appellants respectfully submit that claim 36 recites combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to claim 31, Appellants submit that the cited art does not teach or suggest the limitation "*wherein each computer card comprises: a frame; a printed circuit board mounted to the frame; a CPU comprised on the printed circuit board; a memory comprised on the printed circuit board; a non-volatile memory comprised on the frame; network interface logic comprised on the printed circuit board for interfacing to a network; human interface logic comprised on the printed circuit board which is operable to receive two or more human interface signals and encode the two or more human interface signals into a format suitable for transmission to at least one of the plurality of human interface devices; and a human interface connector coupled to the human interface logic, wherein the human interface connector is configured to couple to the one or more cables for transmission of the encoded human interface signals to the at least one of the plurality of human interface devices; wherein the human interface logic is further operable to receive two or more encoded human interface signals from the at least one of the plurality of human interface devices and decode the two or more encoded human interface signals from a format suitable for transmission from the at least one of the plurality of human interface devices; and wherein the human interface connector is further configured to couple to the one or more cables for reception of the encoded human interface signals from the at least one of the plurality of human interface devices*".

For example, neither Lach nor Ledzius discloses a plurality of computer cards (as defined in the independent claims and specification) at all, and specifically, do not describe the computer cards of claim 36. For example, the host computers of both Lach and Ledzius are each singular computers. Moreover, neither the adaptor cards of Lach, nor the PCMCIA cards of Ledzius include the features recited in claim 36.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claim 36. Appellants respectfully submit that claim 36 is patentably distinct and non-obvious over the cited art.

Claim 40

Appellants respectfully submit that claim 40 recites combinations of features not taught or suggested in Lach and/or Ledzius.

In addition to the distinctions noted above in regard to independent claim 1, Appellants submit that the cited art does not teach or suggest the limitation "*wherein the computer card contains a personal computer*".

Appellants submit that there are notable distinctions between "server" computers on cards, and "client" computers on cards; for example, client computers are generally used by a single user at a time, and thus are generally associated with a single user interface, whereas server computers typically serve applications or other services to one or more client computers, and may not even have an associated user interface. Appellants submit that neither Lach nor Ledzius discloses a plurality of computers on cards, each comprising a respective personal computer.

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claim 40. Appellants respectfully submit that claim 40 is patentably distinct and non-obvious over the cited art.

Claim 41

Appellants respectfully submit that claim 40 recites combinations of features not taught or suggested in Lach and/or Ledzius.

Appellants submit that the cited art does not teach or suggest the limitation "*a cage having a plurality of slots, wherein each of the slots is configured to receive a computer card; a plurality of computer cards, wherein each computer card comprises one of the plurality of computing systems, wherein each computing system comprises a personal computer including a processor and a memory for executing at least one application program, wherein each personal computer comprised on each of the plurality of computer cards interfaces with a separate set of human interface devices, including at least a monitor and a keyboard, to provide personal computer functionality to a user of the separate set of human interface devices; a removable function module, wherein the removable function module is operable to electrically couple to at least a subset of the*

plurality of computer cards, wherein the removable function module is operable to provide additional functionality to each of the computer cards comprised in the slots of the cage".

For example, as argued above with respect to independent claim 1, neither Lach nor Ledzius discloses a plurality of computer cards as defined in claim 41 and specification at all, nor a removable function module as defined in claim 41 and the specification. Additionally, as argued above with respect to claim 40, Appellants submit that neither Lach nor Ledzius discloses a plurality of computers on cards, each comprising *a respective personal computer, i.e., a client computer.*

Thus, for at least the reasons provided above, Appellants submit that neither Lach nor Ledzius, taken singly or in combination, teaches or suggests the features and limitations of claim 41. Appellants respectfully submit that claim 41 is patentably distinct and non-obvious over the cited art.

VIII. CONCLUSION

For the foregoing reasons, it is submitted that the Examiner's rejection of claims 1-3, 12, 23, 24, 31, 34, and 35 was erroneous, and reversal of his decision is respectfully requested.

The Commissioner is authorized to charge the appeal brief fee of $250.00 (small entity fee) and any other fees that may be due to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5150-56900/JCH. This Appeal Brief is submitted with a return receipt postcard.

Respectfully submitted,

Mark S. Williams
Reg. No. 50,658
Agent for Appellants

Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C.
P.O. Box 398
Austin, TX 78767-0398
(512) 853-8800

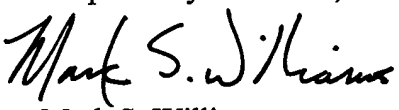
Date: April 18, 2005 JCH/MSW

VIII. CONCLUSION

For the foregoing reasons, it is submitted that the Examiner's rejection of claims 1-3, 12, 23, 24, 31, 34, and 35 was erroneous, and reversal of his decision is respectfully requested.

The Commissioner is authorized to charge the appeal brief fee of $250.00 (small entity fee) and any other fees that may be due to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5150-56900/JCH. This Appeal Brief is submitted with a return receipt postcard.

Respectfully submitted,



Mark S. Williams
Reg. No. 50,658
Agent for Appellants

Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C.
P.O. Box 398
Austin, TX 78767-0398
(512) 853-8800

Date: April 18, 2005 JCH/MSW

IX. CLAIMS APPENDIX

The claims on appeal are as follows.

1. A system comprising a plurality of computing systems, the system comprising:

a cage having a plurality of slots, wherein each of the slots is configured to receive a computer card;

a plurality of computer cards, wherein each computer card comprises one of the plurality of computing systems, wherein each computing system includes a processor and a memory for executing at least one application program;

a removable function module, wherein the removable function module is operable to electrically couple to at least a subset of the plurality of computer cards, wherein the removable function module is operable to provide additional functionality to each of the computer cards comprised in the slots of the cage.

2. The system of claim 1, wherein each of the plurality of computer cards is configured for coupling to one or more cables for communication of encoded human interface signals with a remote location.

3. The system of claim 2, wherein each of the plurality of computer cards is further configured for communication of network signals with a network.

4. The system of claim 1, wherein the cage further includes a cage connector positioned proximate to each of the slots of the cage, wherein the cage connector includes a plurality of computer card connectors which are each configured to couple to one of the computer cards when the computer cards are inserted into slots of the cage, wherein the cage connector further includes a plurality of second connectors electrically coupled to the plurality of computer card connectors;

wherein the removable function module is operable to be coupled to the plurality of second connectors.

5. The system of claim 4, wherein the plurality of second connectors are each configured for coupling to one or more cables for communication of encoded human interface signals with a remote location, and for communication of network signals with a network;

6. The system of claim 1, wherein the removable function module is a first removable function module that provides first functionality;

wherein the first removable function module is operable to be removed and replaced with a second different removable function module, wherein the second removable function module provides second different functionality to each of the computer cards comprised in the slots of the cage.

7. The system of claim 1, wherein the removable function module comprises one or more of:

at least one cable connection module, wherein the at least one cable connection module is operable to provide cable connections to one or more cables for the plurality of computer cards;

at least one network card, wherein the at least one network card is operable to provide a network interface to the plurality of computer cards; and

at least one network switch, wherein the at least one network switch is operable to perform network switching functions for the plurality of computer cards;

at least one data switch, wherein the at least one data switch is operable to perform data switching functions for the plurality of computer cards;

at least one network router, wherein the at least one network router is operable to perform network routing functions for the plurality of computer cards;

at least one network processing unit, wherein the at least one network processing unit is operable to perform network processing functions for the plurality of computer cards;

a Gigabit Ethernet network interface, wherein the Gigabit Ethernet network interface includes a Gigabit Ethernet bus, wherein the Gigabit Ethernet network interface comprises a plurality of Gigabit Ethernet ports for each of at least a subset of the plurality of computer cards;

at least one gateway, wherein the at least one gateway is operable to perform gateway functions for the plurality of computer cards;

at least one firewall, wherein the at least one firewall is operable to restrict network access to the plurality of computer cards;

a human interface switching unit, wherein the human interface switching unit is configurable to route encoded human interface signals from one or more of the plurality of computer cards to one or more of a plurality of remote human interface devices coupled to the removable function module;

at least one analog POTS unit, wherein the at least one analog POTS unit is operable to provide standard analog telephony services to the plurality of computer cards;

at least one digital telephone, wherein the at least one digital telephone is operable to provide digital telephony services to the plurality of computer cards;

at least one PBX unit, wherein the at least one PBX unit is operable to provide PBX services to the plurality of computer cards;

at least one Voice over Internet Protocol (VoIP) telecommunication device, wherein the at least one VoIP telecommunication device is operable to provide VoIP services to the plurality of computer cards;

at least one MPEG video unit, wherein the at least one MPEG video unit is operable to provide MPEG video services to the plurality of computer cards.

8. The system of claim 1, wherein the external connectors are standard connectors, and wherein the standard connectors comprise one or more of RJ45, db9, db25, or dbhd15 connectors.

9. The system of claim 1, wherein the plurality of computing systems comprises a plurality of independent computing systems.

10. The system of claim 1, wherein each computer card comprises:

a frame;

a printed circuit board mounted to the frame;

a CPU comprised on the printed circuit board;

a memory comprised on the printed circuit board;

a non-volatile memory comprised on the frame;

network interface logic comprised on the printed circuit board for interfacing to a network;

human interface logic comprised on the printed circuit board which is operable to receive two or more human interface signals and encode the two or more human interface signals into a format suitable for transmission to a remote location;

wherein the human interface logic is further operable to receive two or more encoded human interface signals from the remote location and decode the two or more encoded human interface signals from a format suitable for transmission from the remote location;

a human interface connector coupled to the human interface logic, wherein the human interface connector is configured to couple to the one or more cables for communication of the encoded human interface signals with a remote location; and

a power supply comprised on the frame, wherein the power supply is operable to couple to an external power source and supply power to the plurality of computing systems.

11. A system comprising a plurality of computing systems, the system comprising:

a cage having a plurality of slots, wherein each of the slots is configured to receive a computer card;

a plurality of computer cards, wherein each computer card comprises one of the plurality of computing systems, wherein each computing system includes a processor and a memory for executing at least one application program;

wherein the cage further includes a cage connector positioned proximate to each of the slots of the cage, wherein the cage connector includes a plurality of computer card connectors which are each configured to couple to one of the computer cards when the computer cards are inserted into slots of the cage, wherein the cage connector further includes a plurality of second connectors electrically coupled to the plurality of computer card connectors; and

a removable function module, wherein the removable function module is operable to couple to the plurality of second connectors, wherein the removable function module is operable to provide additional functionality to each of the computer cards comprised in the slots of the cage.

12. The system of claim 11, wherein each of the plurality of computer cards is configured for coupling to one or more cables for communication of encoded human interface signals with a remote location, and for communication of network signals with a network.

13. The system of claim 12, wherein each of the plurality of computer cards is configured for coupling to the one or more cables through the plurality of second connectors.

14. The system of claim 12, wherein each of the plurality of computer cards is configured for coupling to the one or more cables through the plurality of second connectors and through the removable function module.

15. The system of claim 11, wherein the removable function module is a first removable function module that provides first functionality;

wherein the first removable function module is operable to be removed and replaced with a second different removable function module, wherein the second removable function module provides second different functionality to each of the computer cards comprised in the slots of the cage.

16. The system of claim 11, wherein the removable function module comprises one or more of:

at least one cable connection module, wherein the at least one cable connection module is operable to provide cable connections to one or more cables for the plurality of computer cards;

at least one network card, wherein the at least one network card is operable to provide a network interface to the plurality of computer cards; and

at least one network switch, wherein the at least one network switch is operable to perform network switching functions for the plurality of computer cards;

at least one data switch, wherein the at least one data switch is operable to perform data switching functions for the plurality of computer cards;

at least one network router, wherein the at least one network router is operable to perform network routing functions for the plurality of computer cards;

at least one network processing unit, wherein the at least one network processing unit is operable to perform network processing functions for the plurality of computer cards;

a Gigabit Ethernet network interface, wherein the Gigabit Ethernet network interface includes a Gigabit Ethernet bus, wherein the Gigabit Ethernet network interface comprises a plurality of Gigabit Ethernet ports for each of at least a subset of the plurality of computer cards;

at least one gateway, wherein the at least one gateway is operable to perform gateway functions for the plurality of computer cards;

at least one firewall, wherein the at least one firewall is operable to restrict network access to the plurality of computer cards;

a human interface switching unit, wherein the human interface switching unit is configurable to route encoded human interface signals from one or more of the plurality of computer cards to one or more of a plurality of remote human interface devices coupled to the removable function module;

at least one analog POTS unit, wherein the at least one analog POTS unit is operable to provide standard analog telephony services to the plurality of computer cards;

at least one digital telephone, wherein the at least one digital telephone is operable to provide digital telephony services to the plurality of computer cards;

at least one PBX units, wherein the at least one PBX unit is operable to provide PBX services to the plurality of computer cards;

at least one Voice over Internet Protocol (VoIP) telecommunication device, wherein the at least one VoIP telecommunication device is operable to provide VoIP services to the plurality of computer cards;

at least one MPEG video unit, wherein the at least one MPEG video unit is operable to provide MPEG video services to the plurality of computer cards.

17. The system of claim 11, wherein the external connectors are standard connectors, wherein the standard connectors comprise one or more of RJ45, db9, db25, or dbhd15 connectors.

18. The system of claim 11, wherein the plurality of computing systems comprises a plurality of independent computing systems.

19. The system of claim 11, wherein each computer card comprises:

a frame; a printed circuit board mounted to the frame;

a CPU comprised on the printed circuit board;

a memory comprised on the printed circuit board;

a non-volatile memory comprised on the frame;

network interface logic comprised on the printed circuit board for interfacing to a network;

human interface logic comprised on the printed circuit board which is operable to receive two or more human interface signals and encode the two or more human interface signals into a format suitable for transmission to a remote location; and

a human interface connector coupled to the human interface logic, wherein the human interface connector is configured to couple to the one or more cables for transmission of the encoded human interface signals to a remote location; and

a power supply comprised on the frame, wherein the power supply is operable to couple to an external power source and supply power to the plurality of computing systems.

20. The system of claim 11, further comprising a cable connection module, wherein the cable connection module comprises a plurality of third connections which are operable to electrically connect to the plurality of second connectors, and wherein the cable connection module is further operable to couple to one or more cables for one or more of communications between each computer card and respective remote locations, and communications between each computer card and a network.

21. A method for configuring a plurality of computing systems, the method comprising:

inserting a plurality of computer cards into a cage, wherein each computer card comprises one of the plurality of computing systems, wherein each computing system includes a processor and a memory for executing at least one application program, wherein the cage comprises a plurality of slots, wherein each of the slots is configured to receive one of the computer cards; and

attaching a first removable function module to electrically connect with at least a subset of the plurality of computer cards, wherein the first removable function module provides a first additional functionality to each of the at least a subset of the plurality of computer cards comprised in the slots of the cage.

22. The method of claim 21, further comprising: removing the first removable function module; and

attaching a second removable function module to electrically connect with at least a subset of the plurality of computer cards, wherein the second removable function

module provides a second additional functionality to each of the at least a subset of the plurality of computer cards comprised in the slots of the cage.

23. The method of claim 21, further comprising:

electrically coupling each of the computer cards to one or more cables, wherein the one or more cables are configured to couple each of the computer cards to respective one or more human interface devices located remotely from the cage.

24. The method of claim 23,

wherein said electrically coupling comprises attaching the one or more cables to the first removable function module, wherein the one or more cables couple the first removable function module to the one or more human interface devices.

25. The method of claim 23,

wherein the one or more human interface devices are located more than 20 feet from the cage.

26. The method of claim 21, further comprising:

electrically coupling each of the computer cards to one or more cables, wherein the one or more cables are configured to couple each of the computer cards to a network.

27. The method of claim 26,

wherein said electrically coupling comprises attaching the one or more cables to the first removable function module, wherein the one or more cables couple the first removable function module to the network.

28. The method of claim 21, further comprising:

electrically coupling each of the computer cards to one or more cables, wherein the one or more cables are configured to couple the plurality of computer cards to one or more telephone lines.

29. The method of claim 28,

wherein said electrically coupling comprises attaching the one or more cables to the first removable function module, wherein the one or more cables couple the first removable function module to the one or more telephone lines.

30. The method of claim 21, wherein each computer card comprises: a frame; a printed circuit board mounted to the frame; a CPU comprised on the printed circuit board; a memory comprised on the printed circuit board; a non-volatile memory comprised on the frame;

network interface logic comprised on the printed circuit board for interfacing to a network;

human interface logic comprised on the printed circuit board which is operable to receive two or more human interface signals and encode the two or more human interface signals into a format suitable for transmission to a remote location; and

a human interface connector coupled to the human interface logic, wherein the human interface connector is configured to couple to one or more cables for transmission of the encoded human interface signals to the remote location;

wherein the human interface logic is further operable to receive two or more encoded human interface signals from the remote location and decode the two or more encoded human interface signals from a format suitable for transmission from the remote location; and

wherein the human interface connector is further configured to couple to the one or more cables for reception of the encoded human interface signals from the remote location.

31. A method for configuring a plurality of computing systems, the method comprising:

inserting a plurality of computer cards into a cage, wherein each computer card comprises one of the plurality of computing systems, wherein each computing system

includes a processor and a memory for executing at least one application program, wherein the cage comprises a plurality of slots, wherein each of the slots is configured to receive one of the computer cards, wherein the cage further includes a cage connector positioned proximate to each of the slots of the cage, wherein the cage connector includes a plurality of computer card connectors which are each coupled to one of the computer cards when the computer cards are inserted into the slots of the cage, wherein the cage connector further includes a plurality of second connectors electrically coupled to the plurality of computer card connectors;

attaching a first removable function module to the plurality of second connectors, wherein the first removable function module provides a first additional functionality to each of the computer cards comprised in the slots of the cage; and

attaching one or more cables to the first removable function module, wherein the one or more cables couple the first removable function module to one or more of a plurality of human interface devices located remotely from the cage.

32. The method of claim 31, further comprising: detaching the one or more cables from the first removable function module;

detaching the first removable function module from the plurality of second connectors;

attaching a second removable function module to the plurality of second connectors, wherein the second removable function module provides a second additional functionality to each of the computer cards comprised in the slots of the cage; and

attaching the one or more cables to the second removable function module, wherein the one or more cables couple the second removable function module to the one or more of the plurality of human interface devices located remotely from the cage.

33. The method of claim 31,

wherein the one or more cables also couple the first removable function module to one or more networks for communication between the plurality of computer cards and the one or more networks;

34. The method of claim 31,

wherein the one or more cables also couple the first removable function module to one or more telephone lines for communication of telephony signals between the plurality of computer cards and the one or more telephone lines.

35. The method of claim 31,

wherein the plurality of computing systems comprises a plurality of independent computing systems.

36. The method of claim 31, wherein each computer card comprises:

a frame; a printed circuit board mounted to the frame;

a CPU comprised on the printed circuit board;

a memory comprised on the printed circuit board;

a non-volatile memory comprised on the frame;

network interface logic comprised on the printed circuit board for interfacing to a network;

human interface logic comprised on the printed circuit board which is operable to receive two or more human interface signals and encode the two or more human interface signals into a format suitable for transmission to at least one of the plurality of human interface devices; and

a human interface connector coupled to the human interface logic, wherein the human interface connector is configured to couple to the one or more cables for transmission of the encoded human interface signals to the at least one of the plurality of human interface devices;

wherein the human interface logic is further operable to receive two or more encoded human interface signals from the at least one of the plurality of human interface devices and decode the two or more encoded human interface signals from a format suitable for transmission from the at least one of the plurality of human interface devices; and

wherein the human interface connector is further configured to couple to the one or more cables for reception of the encoded human interface signals from the at least one of the plurality of human interface devices.

37. A system, comprising:

a cage comprising slots for at least two computer cards, wherein each slot allows a computer card to be inserted and removed;

at least two computer cards in at least two slots of the cage, wherein each computer card comprises a processor and a memory for executing at least one application program;

a cage connector with multiple edge connector receiving slots, wherein each of the at least two computer cards has an edge connector that is received into a respective edge connector receiving slot of the cage connector when the computer card is inserted into the cage;

a removeable function module coupled to at least two computer cards through the cage connector, wherein the removeable function module is capable of interacting with each of the at least two computer cards to add functionality to each of the at least two computer cards.

38. The system of claim 37, wherein the removable function module comprises one or more of:

at least one cable connection module, wherein the at least one cable connection module is operable to provide cable connections to one or more cables for the plurality of computer cards;

at least one network card, wherein the at least one network card is operable to provide a network interface to the plurality of computer cards; and

at least one network switch, wherein the at least one network switch is operable to perform network switching functions for the plurality of computer cards;

at least one data switch, wherein the at least one data switch is operable to perform data switching functions for the plurality of computer cards;

at least one network router, wherein the at least one network router is operable to perform network routing functions for the plurality of computer cards;

at least one network processing unit, wherein the at least one network processing unit is operable to perform network processing functions for the plurality of computer cards;

a Gigabit Ethernet network interface, wherein the Gigabit Ethernet network interface includes a Gigabit Ethernet bus, wherein the Gigabit Ethernet network interface comprises a plurality of Gigabit Ethernet ports for each of at least a subset of the plurality of computer cards;

at least one gateway, wherein the at least one gateway is operable to perform gateway functions for the plurality of computer cards;

at least one firewall, wherein the at least one firewall is operable to restrict network access to the plurality of computer cards;

a human interface switching unit, wherein the human interface switching unit is configurable to route encoded human interface signals from one or more of the plurality of computer cards to one or more of a plurality of remote human interface devices coupled to the removable function module;

at least one analog POTS unit, wherein the at least one analog POTS unit is operable to provide standard analog telephony services to the plurality of computer cards;

at least one digital telephone, wherein the at least one digital telephone is operable to provide digital telephony services to the plurality of computer cards;

at least one PBX unit, wherein the at least one PBX unit is operable to provide PBX services to the plurality of computer cards;

at least one Voice over Internet Protocol (VoIP) telecommunication device, wherein the at least one VoIP telecommunication device is operable to provide VoIP services to the plurality of computer cards;

at least one MPEG video unit, wherein the at least one MPEG video unit is operable to provide MPEG video services to the plurality of computer cards.

39. The system of claim 37, wherein each computer card comprises:

a frame;

a printed circuit board mounted to the frame;

a CPU comprised on the printed circuit board;

a memory comprised on the printed circuit board;

a non-volatile memory comprised on the frame;

network interface logic comprised on the printed circuit board for interfacing to a network;

human interface logic comprised on the printed circuit board which is operable to receive two or more human interface signals and encode the two or more human interface signals into a format suitable for transmission to a remote location;

wherein the human interface logic is further operable to receive two or more encoded human interface signals from the remote location and decode the two or more encoded human interface signals from a format suitable for transmission from the remote location;

a human interface connector coupled to the human interface logic, wherein the human interface connector is configured to couple to the one or more cables for communication of the encoded human interface signals with a remote location; and

a power supply comprised on the frame, wherein the power supply is operable to couple to an external power source and supply power to the plurality of computing systems.

40. The system of claim 1, wherein the computer card contains a personal computer.

41. A system comprising a plurality of computing systems, the system comprising:

a cage having a plurality of slots, wherein each of the slots is configured to receive a computer card;

a plurality of computer cards, wherein each computer card comprises one of the plurality of computing systems, wherein each computing system comprises a personal computer including a processor and a memory for executing at least one application

program, wherein each personal computer comprised on each of the plurality of computer cards interfaces with a separate set of human interface devices, including at least a monitor and a keyboard, to provide personal computer functionality to a user of the separate set of human interface devices;

a removable function module, wherein the removable function module is operable to electrically couple to at least a subset of the plurality of computer cards, wherein the removable function module is operable to provide additional functionality to each of the computer cards comprised in the slots of the cage.

X. EVIDENCE APPENDIX

No evidence submitted under 37 CFR §§ 1.130, 1.131 or 1.132 or otherwise entered by the Examiner is relied upon in this appeal.

XI. RELATED PROCEEDINGS APPENDIX

There are no related proceedings.